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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,467	02/05/2002	Andrew C. Hiatt	EPI3003C (068904-0204)	4901

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EXAMINER	
NAFF, DAVID M	

ART UNIT	PAPER NUMBER
1651	

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/062,467	HIATT ET AL.	
	Examiner	Art Unit	
	David M. Naff	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/27 & 1/29/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

An amendment of 6/2/03 amended the specification.

Claims examined on the merits are 1-6, which are all claims in the application.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a polypeptide as required by claim 2, 4 or 5, does not reasonably provide enablement for other polypeptides within the scope of the present claims. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The specification fails to disclose polypeptides not having a structure as required by claim 2, 4 or 5, and does not disclose other structured polypeptides as being operable in the invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 is confusing and unclear by reciting "is not a full length dimeric IgA". It is uncertain as to structure of dimeric IgA this limitation requires and the length that is considered not to be a full length. What is the structure of a full length and the structure of not a full length? The specification does not give specific examples. Additionally, "associated with an epithelial surface" is uncertain as to the meaning and scope of "associated".

In the last line of claim 2, "enzyme associated with an epithelial barrier" is confusing. The meaning and scope of "associated" is uncertain. Additionally, it would be uncertain as to structure that is an epithelial barrier". It is suggested that the claim recite "enzyme contained by cells of an epithelial surface".

In the last line of claim 4, "antibody combining site" is uncertain as to meaning and scope by being unclear as to what the combining site combines with and the phenomena that causes combining to occur.

Bridging the last two lines of claim 5, "not naturally associated with the targeting molecule" is unclear since "associated with" is uncertain as to meaning and scope. The claim should recite "not naturally linked to the targeting molecule".

Claim Rejections - 35 USC § 102

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Terskikh et al (AD on form 1449).

The claims are drawn to a targeting molecule linked to an imaging agent wherein the targeting molecule comprises a polypeptide having a closed covalent loop and having at least three peptide domains having β-sheet character and each of the domains being separated by domains lacking β-sheet character, and the imaging agent is not naturally associated with the targeting molecule and is not iodine.

Terskikh et al disclose a dimeric recombinant IgA that contains a J chain (page 1318, left col, 4th paragraph) and can be radiolabeled for use in carcinhoma localization.

The J chain of the polypeptide of Terskikh et al has the polypeptide structure required by the present claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter

pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terskikh et al (AD) in view of Brandtzaeg et al (AQ) and Anderson et al (5,169,933), and if necessary in further view of Max et al (AF), Frutiger et al (AG) or Hendrickson et al (AE) (all references listed on a form PTO-1449).

The invention of claims 5 and 6 is described above. Claims 2-5 differ by requiring specific types of linkages to bind the imaging agent.

Terskikh et al is described above.

Brandtzaeg et al disclose (page 116 in the second paragraph under "SUMMARY") that dimeric IgA contains J chains and the dimers are taken up by columnar epithelial cells that produce a secretory component

(SC). Complexing of dimeric IgA with SC results in selective transport of IgA through epithelium.

Anderson et al disclose covalently linked complexes containing a targeting protein and a cytotoxic and/or imaging agent for targeting and imaging (col 2, lines 49-68). In use, the complexes undergo internalization by binding to target cell plasma membrane (col 3, lines 10-15). Various covalent linkages can be used.

It would have been obvious that recombinant radiolabeled dimeric IgA containing a J chain disclosed by Terskikh et al would be capable of binding to SC contained by epithelial cells and be internalized in the cells as suggested by Brandtzaeg et al teaching dimeric IgA being taken up by epithelial cells by complexing with SC produced by the cells and Anderson et al teaching that complexes of a target protein and a cytotoxic and/or imaging agent undergo internalization after binding to target cell plasma membrane. Additionally, in view of Anderson et al, it would have been within the skill of the art to select a specific preferred linkage such as a substrate or amino acid side chain of an antibody as in claim 2 or 4. Selecting such a linkage would depend only on individual preference and convenience. No unexpected result is seen in the specific linkages claimed. Max et al, Frutiger et al or Hendrickson et al further disclose the nature of the J chain, and if needed would have provided additional information concerning this chain.

Claim Rejections - 35 USC § 103

Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 33-37 above, and further in view of Carter et al (5,731,168).

Claim 1 requires a targeting molecule specifically binding to a basolateral factor associated with an epithelial surface and causing the internalization of an imaging agent linked thereto, wherein the targeting molecule is less than a full length dimeric IgA.

Charter et al disclose producing various recombinant polypeptides which can include a polypeptide having a J chain (col 30, line 17) and can be used for imaging (col 35, line 61) by radiolabeling (col 36, line 3). Charter et al additionally disclose replacing large amino acid side chains with smaller ones (see abstract).

It would have been a matter of obvious choice to prepare the recombinant dimeric IgA of Terskikh et al in a form having less than a full length dimeric IgA in view of Charter et al producing recombinant polypeptides that can be used for imaging having large amino acid side chains replaced with smaller ones. No unexpected result is seen in using less than a full length dimeric IgA, and the result when using less than the full length is the same as when using the full length. No difference in result would especially be expected when the length is only slightly less than the full length.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper

timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-6 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-36 of U.S. Patent No. 6,391,280 B1 or claims 1-37 of U.S. Patent No. 6,045,774. Although the conflicting claims are not identical, they are not patentably distinct from each other because the presently claimed targeting molecule and targeting molecule linked to an imaging agent would have been obvious from the targeting molecule linked to an imaging agent claimed by the claims of the patents.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone number is 571-272-0920. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on 571-272-

0926. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David M. Naff
Primary Examiner
Art Unit 1651

DMN
7/26/04